




UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/633,275	08/04/2000	Wieslaw Jerzy Szajnowski	0054-0217P-SP	2168
7590 12/08/2004			EXAMINER	
Birch Stewart Kolasch & Birch LLP			AHN, SAM K	
P O Box 747			ART UNIT	
Falls Church, VA 22040-0747			PAPER NUMBER	
			2637	

DATE MAILED: 12/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/633,275	Applicant(s)  SZAJNOWSKI, WIESLAW JERZY	
	Examiner Sam K. Ahn	Art Unit 2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment, received on 09/27/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11,12,20,21 and 23 is/are allowed.
- 6) ☒ Claim(s) 1,3-10,13-19 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>092704</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 09/27/04 have been fully considered but they are not persuasive. Applicants have amended the claims to incorporate the limitation wherein the at least one further preliminary signal is a deterministic signal. Albers teaches this limitation. Albers teaches a pseudo random bit sequence generator generating a deterministic signal.

Applicants further argue that Albers' teaching of the PNS cannot be combined with AAPA's teaching of the PNS. The examiner respectfully disagrees. Regardless of whether the PNS generates a deterministic signal or not, the multiplier is capable of multiplying any signal. An undeterministic signal still has a level of high and low (as shown in Fig.2) and the deterministic signal of Albers also has a level of high and low. Thus, the multiplier receives the two signals wherein the two signals have different frequencies (note col.2, lines 59-66). Therefore, combining AAPA's PNS generator with Albers' PNS generator, both coupled to the multiplier would produce the output of a random binary waveform, as recited.

In regards to claim 3, applicants have amended to incorporate the limitation wherein both first preliminary signal and the at least one further preliminary signal is derived by level-detecting at respective different levels. Albers teaches, in the same field of endeavor, plurality of physical noise sources. (see 250, 270 in Fig.2) wherein 250, the physical noise source, along with 270, means for providing at least one further preliminary signal, which is a deterministic signal (note col.2, lines 36-43), are

multiplied by the means for multiplying, 300, multiplying the physical noise source and the output of the means for providing at least one further preliminary signal, and producing the random binary waveform, 310, in which said events are interspersed. (note col.2, line 59 – col.4, line 62) Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify AAPA's disclosure by providing another PNS wherein each of the PNS is coupled to the level detector (of AAPA as shown in Fig.1) further coupled to an ex-or gate, as taught by Albers, and produce random signal for the purpose of generating a signal resembling closer to a true white noise distribution characteristic than having a single physical noise source, as taught by Albers. (note col.1, lines 44-54)

Drawings

2. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance. *Applicants have added the --Prior Art- for Figs.1 and 3 only.*

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,3-10,13-19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Albers et al. (Albers, cited in IDS, paper no.6).

Regarding claims 1 and 16, AAPA discloses a method and apparatus of generating a random binary waveform containing events which occur at random intervals, comprising a physical noise source containing events occurring asynchronously and at random intervals, producing a random output signal. (see PNS in Fig.1, and note p.2, lines 17-25) AAPA further teaches zero-crossing detector (ZCD in Fig.1), means for deriving, coupled to receive output of PNS. However, AAPA does not teach means for providing at least one further preliminary signal, and means for multiplying. Albers teaches, in the same field of endeavor, plurality of physical noise source. (see 250, 270 in Fig.2) wherein 250, the physical noise source, along with 270, means for providing at least one further preliminary signal, which is a deterministic signal (note col.2, lines 36-43), are multiplied by the means for multiplying, 300, multiplying the physical noise source and the output of the means for providing at least one further preliminary signal, and producing the random binary waveform, 310, in which said events are

interspersed. (note col.2, line 59 – col.4, line 62) Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify AAPA's disclosure by introducing another physical noise source coupled to the first physical noise source through an ex-or gate, as taught by Albers, and produce random signal for the purpose of generating a signal resembling closer to a true white noise distribution characteristic than having a single physical noise source, as taught by Albers. (note col.1, lines 44-54)

Regarding claims 3 and 22, AAPA discloses a method and apparatus of generating a random binary waveform containing events which occur at random intervals, comprising a physical noise source containing events occurring asynchronously and at random intervals, producing a random output signal. (see PNS in Fig.1, and note p.2, lines 17-25) AAPA further teaches zero-crossing detector (first level detector having a first threshold, ZCD in Fig.1), means for deriving, coupled to receive output of PNS.

However, AAPA does not teach providing another PNS wherein a second PNS (coupled to a second level detector) would produce at least one further preliminary signal, and means for multiplying. Albers teaches, in the same field of endeavor, plurality of physical noise sources. (see 250, 270 in Fig.2) wherein 250, the physical noise source, along with 270, means for providing at least one further preliminary signal, which is a deterministic signal (note col.2, lines 36-43), are multiplied by the means for multiplying, 300, multiplying the physical noise

source and the output of the means for providing at least one further preliminary signal, and producing the random binary waveform, 310, in which said events are interspersed. (note col.2, line 59 – col.4, line 62) Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify AAPA's disclosure by providing another PNS wherein each of the PNS is coupled to the level detector (of AAPA as shown in Fig.1, wherein the second level detector has a second threshold) further coupled to an ex-or gate, as taught by Albers, and produce random signal for the purpose of generating a signal resembling closer to a true white noise distribution characteristic than having a single physical noise source, as taught by Albers. (note col.1, lines 44-54)

Regarding claim 4, AAPA in view of Albers teach all subject matter claimed, as applied to claim 1. As the outputs of the two level detectors are analog, it is inherent that the multiplication performed, rather than the ex-or gate, performs an analog multiplication. One skilled in the art would be able to generate analog signal through PNS taught by AAPA, or generate digital signal through 250 and 270 in Fig.2, and therefore, it would have been a matter of design choice for one skilled in the art to either generate analog and digital signal. If one were to generate an analog signal, it would inherently comprise an analog multiplier to multiply the two analog signals.

Regarding claims 5 and 6, Regarding claim 3, AAPA in view of Albers teach all subject matter claimed, as applied to claim 1. Albers further teaches wherein the preliminary signals are binary signals which are combined by binary multiplication, an exclusive-or operation. (300 in Fig.2) One skilled in the art would be able to generate analog signal through PNS taught by AAPA, or generate digital signal through 250 and 270 in Fig.2, and therefore, it would have been a matter of design choice for one skilled in the art to either generate analog and digital signal. If one were to generate a digital signal, it would inherently comprise the binary multiplication to multiply the two digital signals.

Regarding claims 7-9 and 17, AAPA in view of Albers teach all subject matter claimed, as applied to claim 1 or 16. It is inherent that the physical noise source produces a non-deterministic output as the teachings of both AAPA and Albers are to produce a random sequence, chaotic output, or a pseudo-random binary sequence. (note abstract of Albers)

Regarding claim 10, AAPA in view of Albers teach all subject matter claimed, as applied to claim 1. Albers further discloses at least one further preliminary signal is a pseudo random bit sequence generator (270) outputting a chaotic signal.

Regarding claim 13, AAPA in view of Albers teach all subject matter claimed, as applied to claim 1. Albers further teaches wherein the pseudo random bit

sequence generator (250) may be coupled to a low pass filter or a spectral filter, filtering low frequency. (note col.1, lines 14-17)

Regarding claim 14, AAPA in view of Albers teach all subject matter claimed, as applied to claim 1. Albers further teaches that the number of pseudo random bit sequence generator (250) may be even two or more, (note col.5, lines 39-42) which may be equal to three or four.

Regarding claims 15 and 19, AAPA in view of Albers teach all subject matter claimed, as applied to claim 1 or 3. AAPA further discloses that the generation of binary waveform may be applied in a radar and communications. (note p.1, lines 16-17) Therefore, it would have been obvious to one skilled in the art at the time of the invention to implement the combined teaching of AAPA and Albers in a radar system and measure the delay between the transmitted and received signal to detect any object, as this is well-known in the art.

Regarding claim 18, AAPA in view of Albers teach all subject matter claimed, as applied to claim 3. Albers further teaches wherein the number of preliminary signals, including said first and further preliminary signals, may be two or more, which includes 3 or 4 as recited (note col.5, lines 34-42).

Allowable Subject Matter

4. Claims 11,12,20,21 and 23 are allowed.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

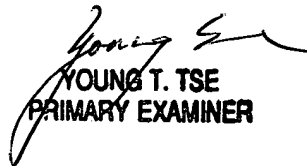
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public

Art Unit: 2637

PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sam K. Ahn
12/3/04


YOUNG T. TSE
PRIMARY EXAMINER